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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/402,978	02/11/2000	HUGO DE LASA	10914-10	6701

7590 01/30/2003

DINSMORE & SHOHL  
255 EAST FIFTH STREET  
1900 CHEMED CENTER  
CINCINNATI, OH 45202

EXAMINER

CONLEY, SEAN E

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 01/30/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/402,978

Applicant(s)

DE LASA ET AL.

Examiner

Sean E Conley

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 19-25 is/are rejected.
- 7) ☒ Claim(s) 14-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 11 recites the limitation "said vacuum" in line 9. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 13 recites the limitation "said Venturi" in line 17. There is insufficient antecedent basis for this limitation in the claim.
5. Claim 24 recites the limitation "said vacuum" in line 8. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-9, 19 and 22 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 96/37281.

WO 96/37281 discloses a bench top air purification device which uses ultraviolet light to activate a photocatalyst such as titanium dioxide (see abstract). The apparatus comprises a housing (1) having an inlet (2) and an outlet (4) for circulating air. The air is circulated by a fan (5) located downstream of the ultraviolet light source (13). The air is sucked into the inlet (2) and passes through a planar filter (7) which has a photocatalyst fixed to a fibrous porous support. The filter is activated by an ultraviolet light source (13) and once the air is treated by the filter and irradiated it exits through the outlet (4) (see figures 1-3). It is further disclosed that the outlet (4) may be made smaller than the inlet (2) in order to equalize the system (see page 4, lines 23-26).

The irradiating means (13) is transversely positioned with respect to the gas stream (see figure 1). The titanium dioxide photocatalyst is imbedded within a supported fibrous mesh and the support is a porous plate constructed from a non-corrosive polypropylene fiber. Furthermore, the porous plate support is heated by the ultraviolet light (13) which is also used to activate the titanium dioxide photocatalyst (see figures 7-9 and page 11, line 18 to page 13, line 13). The titanium dioxide photocatalyst is electrostatically bound to the fibrous support, wherein up to 50% by weight of photocatalyst can be loaded onto the support based on the weight of the support (see page 8, line 28- page 9, line 2).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 10,12-13, 21, 23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/37281 as applied to claim 1, 2, and 22 above and further in view of DE 4012119 A1.

WO 96/37281 does not teach or disclose a Venturi section for constraining and increasing the velocity of the gas stream while at the same time creating a suction effect.

DE 4012119 A1 teaches a system for cleaning air which comprises a Venturi tube which is an elongate pipe having a convergent section, a straight section and a divergent section. The Venturi tube (7) is located upstream of a catalyst (6) which is housed in an oxidation reactor (5). The catalyst is used to clean the air as it is passed through the oxidation reactor (5) (see figure 1).

Therefore, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to modify WO 96/37281 and add a Venturi section prior to the air treatment means as taught by DE 4012119 A1 in order to increase the velocity of the gas as it impinges upon the catalyst.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/37281 as applied to claim 1 above, and further in view of Goswami (U.S. Pat. 5,835,840).

WO 96/37281 does not teach or disclose a fan means located upstream of the irradiating means for circulating the gas stream towards the irradiating means.

Goswami teaches a system for disinfecting and detoxifying indoor duct transported air in order to improve the air quality. A reactor is positioned across a duct along an airstream's path. The reactor (21) has a mesh (28) that is coated with a catalyst of titanium dioxide and further has ultraviolet lamps (24) for activating the titanium dioxide (see column 4). The air is drawn through the system by a fan (65) which is located upstream of the ultraviolet light irradiating means (see figure 1).

Therefore, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to modify the invention of WO 96/37281 and move the fan (5) which is located downstream of the irradiating means to an upstream location as taught by Goswami in order to circulate the gas stream towards the irradiating means.

#### ***Allowable Subject Matter***

13. Claims 14-18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. 4,955,208 to Kawashima et al.

U.S. Pat. 5,045,288 to Raupp et al.

U.S. Pat. 6,117,337 to Gonzalez-Martin et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Conley, whose telephone number is (703) 305-2430. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Robert Warden, can be reached at (703) 308-2920. The Unofficial fax phone number for this group is (703) 305-7719. The Official fax phone number for this Group is (703) 872-9310.

When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of the application. This will expedite the processing of your papers.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [robert.warden@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees will not communicate with applicant via internet e-mail where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is of record express waiver of the confidentiality requirements under 35 U.S.C. 122 by the applicant. See the Interim Internet Usage Policy published by the Patent and Trademark Office Official Gazette on February 25, 1997 at 1195 OG 89.

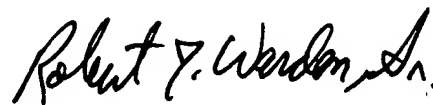


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Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist, whose telephone number is (703) 308-0661.

SEC

December 23, 2002

A handwritten signature in black ink, reading "Robert J. Warden, Sr." in a cursive style.

ROBERT J. WARDEN, SR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700